CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

MONTHLY MANAGEMENT

November 2004

December 8, 2004

APPENDED TO EXECUTIVE OFFICER REPORT

CONTENTS

SIGNIFICANT NPDES
PERMITS, WDRS, AND RB ACTIONS

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DATE OF REPORT **DECEMBER 8, 2004**									
NAME OF PERMIT/WDR/RB ACTION	**Action Type**	**Initial Document Application Complete**	**Disch./RWQ Limits and Monitoring Plan Known**	**Draft Complete**	**Public Rev. & Comment**	**BOARD HEARING & ADOPTION**	**Consent Item**	**COMMENTS**	**Staff**
FEBRUARY 9, 2005 RB MEETING									
TOT. MAX. DAILY LOAD--SHELTER ISL. YACHT BASIN SAN DIEGO BAY--DISSOLVED COPPER	Basin Plan Amendment	NA	100%	100%	60%	February 9, 2005	No	Consider adoption of Basin Plan Amendment	Dobalian
NASSCO AND SOUTHWEST MARINE SHIPYARDS SEDIMENT CLEANUP SAN DIEGO BAY	Public Testimony CAO	NA	NA	60%	0%	February 9, 2005	No	Conduct hearing	Alo
SO. CALIF. EDISON CO. SAN ONOFRE NUCLEAR POWER STATION UNIT NOS. 2, and 3	NPDES Permit Renewal	100%	80%	50%	0%	February 9, 2005	No	NPDES Workplan FY 2004-05	Navrozali
SAN ELIJO JOINT POWERS AUTHORITY SAN ELIJO WPCF	NPDES Permit Renewal	100%	90%	0%	0%	February 9, 2004	No	NPDES Workplan FY 2004-05	Kelley
CITY OF ESCONDIDO HALE AVE. RESOURCE RECOVERY FACILITY	NPDES Permit Renewal	100%	90%	0%	0%	February 9, 2004	No	NPDES Workplan FY 2004-05	Kelley
FALLBROOK PUBLIC UTILITY DISTRICT FALLBROOK RECLAMATION PROJECT	Master Reclamatior Permit Update	NA	100%	80%	0%	February 9, 2005	Yes		Vasquez
CULLIGAN WATER CONDITIONING SAN DIEGO	NPDES Permit Renewal	50%	100%	0%	0%	February 9, 2005	Yes	NPDES Workplan FY 2004-05	Felix
IMANI TEMPLE OF TEMECULA ONSITE ALTERNATIVE DISPOSAL SYSTEM	New WDRs	100%	90%	80%	0%	February 9, 2005	Yes		Morris
MARCH 9, 2005 RB MEETING									
NASSCO AND SOUTHWEST MARINE SHIPYARDS SEDIMENT CLEANUP SAN DIEGO BAY	Adoption: CAO	NA	NA	0%	0%	March 9, 2005	No		Alo
MISSION VALLEY TERMINALS ADDENDUM TO CAO NO. 92-01	Hearing: CAO	NA	25%	0%	0%	March 9, 2005	No	Conduct Hearing	Dorsey
CABRILLO LLC ENCINA POWER PLANT CARLSBAD	NPDES Permit Renewal	100%	80%	0%	0%	March 9, 2005	No	NPDES Workplan FY 2004-05	Phillips
CITY OF OCEANSIDE OCEAN OUTFALL DISCHARGE TO PACIFIC OCEAN	NPDES Permit Renewal	80%	80%	0%	0%	March 9, 2005	No	NPDES Workplan FY 2004-05	Kelley
FALLBROOK PUD / OCEANSIDE OCEAN OUTFALL DISCHARGE TO PACIFIC OCEAN	NPDES Permit Renewal	80%	80%	0%	0%	March 9, 2005	No	NPDES Workplan FY 2004-05	Kelley
MOUNTAIN WATER ICE CO. OCEANSIDE	NPDES Permit Renewal	50%	100%	0%	0%	March 9, 2005	Yes	NPDES Workplan FY 2004-05	Phillips
CITY OF ESCONDIDO BRINE WASTE DISCHARGE TO SAN ELIJO OCEAN OUTFALL	New NPDES Permit	0%	80%	0%	0%	March 9, 2005	Yes	NPDES Workplan FY 2004-05	Kelley

SIGNIFICANT NPDES
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APRIL 13, 2005 RB MEETING									
SEAWORLD SAN DIEGO MISSION BAY	NPDES Permit	0%	80%	0%	0%	April 13, 2005		NPDES Workplan FY 2004-05	Richter
	Renewal								
ENCINA WASTE WATER AUTHORITY CARLSBAD	NPDES Permit	0%	80%	0%	0%	April 13, 2005		NPDES Workplan FY 2004-05	Kelley
ENCINA OCEAN OUTFALL	Renewal								
JACK AND MARK STIEFEL DAIRY	NPDES Permit	0%	100%	0%	0%	April 13, 2005		NPDES Workplan FY 2004-05	Phillips
RIVERSIDE COUNTY	Renewal								
MAY 11, 2005 RB MEETING									
SAN DIEGO PORT DISTRICT FISH	NPDES Permit	0%	100%	0%	0%	May 11, 2005		NPDES Workplan FY 2004-05	Phillips
FISH SORTING SAN DIEGO BAY	Renewal								
JUNE 8, 2005 RB MEETING									
GROUNDWATER EXTRACTION GENERAL PERMIT	NPDES Permit	NA	50%	0%	0%	June 8, 2005		NPDES Workplan FY 2004-05	Phillips
FOR SAN DIEGO BAY	Renewal								
ONE AMERICA PLAZA BLDG. GROUNDWATER	New NPDES	0%	50%	0%	0%	June 8, 2005		NPDES Workplan FY 2004-05	Phillips
DISCHARGE TO SAN DIEGO BAY	Permit								
EMBASSY SUITES HOTEL GROUNDWATER	New NPDES	0%	50%	0%	0%	June 8, 2005		NPDES Workplan FY 2004-05	Phillips
DISCHARGE TO SAN DIEGO BAY	Permit								
PENDING / UNSCHEDULED ACTIONS									
GREGORY CANYON LANDFILL	New WDRs	90%	10%	0%	0%				Tamaki
NORTH SAN DIEGO COUNTY									
UCSD SCRIPPS INSTITUTION OF OCEANOGRAPHY	NPDES Permit	100%	90%	90%	0%			NPDES Workplan FY 2004-05	Richter
PACIFIC OCEAN	Renewal								

SANITARY SEWER OVERFLOW STATISTICS (Updated through November 30, 2004)

SEWAGE COLLECTION AGENCY	SYSTEM SIZE[B]		NO. OF SEWAGE SPILLS [LISTED BY FISCAL YEAR (FY) - JULY 1 THROUGH JUNE 30]				SPILLS PER 100 MILES (LISTED BY FY)				SPILL VOLUME 2004-05[A]	
	Miles	MGD	01-02	02-03	03-04	04-05[A]	01-02	02-03	03-04	04-05[A]	GAL	GAL/MG[D]
ORANGE COUNTY:												
EL TORO WD	55	2.2	3	1	3	2	5.5	1.8	5.5	3.7	60	0.2
EMERALD BAY SERVICE DISTRICT	6	0.09	0	0	0	1	0.0	0.0	0.0	16.7	350	24.3
IRVINE RANCH WD	36	2.0	0	0	0	0	0.0	0.0	0.0	0.0	0	0.0
LAGUNA BEACH, CITY OF	95	2.4	10	27	8	5	10.5	28.4	8.4	5.3	2,480	6.9
MOULTON NIGUEL WD	530	13.0	2	1	2	0	0.4	0.2	0.4	0.0	0	0.0
SAN CLEMENTE, CITY OF	179	4.5	6	7	2	4	3.3	3.9	1.1	2.2	2,573	3.8
SAN JUAN CAPISTRANO, CITY OF	100	3.4	0	0	1	1	0.0	0.0	1.0	1.0	35	0.1
SANTA MARGARITA WD	546	10.7	12	4	5	5	2.2	0.7	0.9	0.9	2,024	1.2
SOUTH COAST CWD	132	4.0	5	8	7	1	3.8	6.1	5.3	0.8	20	0.0
TRABUCO CANYON WD	43	0.72	0	0	1	2	0.0	0.0	2.3	4.7	1,614	14.7
RIVERSIDE COUNTY:												
EASTERN MWD	421	9.5	1	3	7	0	0.2	0.7	1.7	0.0	0	0.0
ELSINORE VALLEY MWD	80	2.0	0	0	1	1	0.0	0.0	1.3	1.3	8,777	28.6
MURRIETA MWD	25	0.5	E	E	1	0	E	E	4.0	0.0	0	0.0
RANCHO CA WD	71	2.9	2	0	1	1	2.8	0.0	1.4	1.4	900	2.1
SAN DIEGO COUNTY:												
BUENA SANITARY DISTRICT	84	1.9	0	2	1	0	0.0	2.4	1.2	0.0	0	0.0
CARLSBAD MWD	214	7.2	15	6	6	3	7.0	2.8	2.8	1.4	742	0.7
CHULA VISTA, CITY OF	400	16.0	6	3	1	3	1.5	0.8	0.3	0.8	1,880	0.8
CORONADO, CITY OF	53	3.8	5	2	5	0	9.4	3.8	9.4	0.0	0	0.0
DEL MAR, CITY OF	30	1.1	2	7	1	0	6.7	23.4	3.3	0.0	0	0.0
EL CAJON, CITY OF	198	9.1	2	3	0	2	1.0	1.5	0.0	1.0	2,090	1.5
ENCINITAS, CITY OF	118	4.1	2	6	1	4	1.7	5.1	0.8	3.4	49,695	79.0
ESCONDIDO, CITY OF	350	10.8	14	3	2	2	4.0	0.9	0.6	0.6	2,910	1.8
FAIRBANKS RANCH COMM SERV DIST	15	0.21	0	0	0	0	0.0	0.0	0.0	0.0	0	0.0
FALLBROOK PUBLIC UTILITY DIST[C]	72	2.0	17	22	9	1	23.6	30.6	12.5	1.4	2,025	6.6
IMPERIAL BEACH, CITY OF	84	2.2	1	14	2	2	1.2	16.7	2.4	2.4	810	2.5
LA MESA, CITY OF	155	5.8	12	3	4	1	7.7	1.9	2.6	0.6	675	0.8
LEMON GROVE, CITY OF	69	2.4	9	4	4	2	13.0	5.8	5.8	2.9	48,000	129.8

ATTACHMENT B-1

SANITARY SEWER OVERFLOW STATISTICS (Updated through November 30, 2004)

SEWAGE COLLECTION AGENCY	SYSTEM SIZE[B]		NO. OF SEWAGE SPILLS [LISTED BY FISCAL YEAR (FY) - JULY 1 THROUGH JUNE 30]				SPILLS PER 100 MILES (LISTED BY FY)				SPILL VOLUME 2004-05[A]	
	Miles	MGD	01-02	02-03	03-04	04-05[A]	01-02	02-03	03-04	04-05[A]	GAL	GAL/MG[D]
SAN DIEGO COUNTY *(continued)*:												
LEUCADIA CWD	185	4.2	5	6	1	2	2.7	3.2	0.5	1.1	3,300	5.1
NATIONAL CITY, CITY OF	97	5.1	0	1	2	1	0.0	1.0	2.1	1.0	1,500	1.9
OCEANSIDE,CITY OF,WTR UTIL DEP	446	13.0	17	23	22	6	3.8	5.2	4.9	1.3	1,730	0.9
OLIVENHAIN MWD	16	0.39	1	2	0	2	6.3	12.5	0.0	12.5	825	13.7
OTAY MWD	86	1.4	0	3	1	0	0.0	3.5	1.2	0.0	0	0.0
PADRE DAM MWD	150	5.1	4	3	3	0	2.7	2.0	2.0	0.0	0	0.0
PAUMA VALLEY COMM SERVICE DIS	8	0.07	0	0	0	0	0.0	0.0	0.0	0.0	0	0.0
POWAY, CITY OF	170	4.0	1	5	3	0	0.6	2.9	1.8	0.0	0	0.0
RAINBOW MWD	54	0.74	2	2	6	1	3.7	3.7	11.1	1.8	100	0.9
RAMONA MWD	83	1.3	5	2	2	0	6.0	2.4	2.4	0.0	0	0.0
RANCHO SANTA FE COMM SERV DIST	52	0.44	1	1	0	1	1.9	1.9	0.0	1.9	670	10.0
SAN DIEGO CO, PUBLIC WORKS	380	11.0	4	11	2	0	1.1	2.9	0.5	0.0	0	0.0
SAN DIEGO, CITY OF, MWWD	2,894	170	226	193	115	46	7.8	6.7	4.0	1.6	46,264	1.8
SOLANA BEACH, CITY OF	52	1.2	2	1	6	0	3.8	1.9	11.5	0.0	0	0.0
USMC BASE, CAMP PENDLETON	194	3.1	18	23	14	3	9.3	11.9	7.2	1.5	3,850	8.3
US NAVY	123	4.0	24	12	11	8	19.5	9.8	9.0	6.5	3,980	6.5
VALLECITOS WD	202	6.1	4	5	4	2	2.0	2.5	2.0	1.0	270	0.3
VALLEY CENTER MWD	48	0.32	0	3	1	0	0.0	6.3	2.1	0.0	0	0.0
VISTA, CITY OF	198	6.5	4	4	7	1	2.0	2.0	3.5	0.5	100	0.1
WHISPERING PALMS COMM SERV DIS	17	0.26	1	1	0	0	5.8	5.8	0.0	0.0	0	0.0
REGION 9 TOTAL	9615	363	445	427	275	116					190,249	
AVERAGE [1]							4.6	4.4	2.9	1.2		8
STANDARD DEVIATION [2]							5.0	7.0	3.4	3.1		22
MEDIAN [3]							2.4	2.4	2.0	1.0		1

[A] Includes available preliminary data for July-November 2004 and may not include all spills less than 1,000 gallons that did not enter surface waters or storm drains during this period.

[B] As of June 2003.

[C] Does not include 11 SSOs in 2000-2001 which occurred from private property but are the reponsibility of the Fallbrook PUD according to its own existing policies at the time.

[D] Volume of spills for the period in gallons divided by the amount conveyed for the period in million gallons

[E] Included with Eastern Municipal Water District

[1] The average is the sum of all values divided by the number of values.

[2] In a normally distributed set of values, 68% of the values are within one standard deviation either above or below the average value.

[3] The median is the middle value in a set; half the values are above the median, and half are below the median.

11/1/04	McMillin Otay Ranch, LLC	Otay Ranch Village Seven (Vista Verde) Project	Development of 753 residential units, a park, elementary school, portions of a high school, town square, private park, and open space on a 180-acre site.	Unnamed Drainage to Wolf Canyon.	Streambed (P) – 0.28 acre	Onsite creation of 0.28 acre of streambed and purchase of 0.28 acre credit at Rancho Jamul Mitigation Bank.	Conditional
11/2/04	City of Temecula	Lower Reach Pechanga Parkway Phase II	Widening 960 linear feet of the lower portion of the improved Wolf Creek channel.	Wolf Creek	Southern Willow Scrub (P) – 0.1; (T) – 0.26	Creation and revegetation onsite for a total of 0.66 acre of southern willow scrub.	Conditional
11/2/04	Port of San Diego	Imperial Beach Fishing Pier Rehabilitation	Repair and replacement of steel frames, timber deck planks, surface blast cleaning, and coal tar epoxy coating of steel piles and frames.	Pacific Ocean	None	None	Conditional
11/9/04	Lennar Communities	Wagon Wheel Creek Stream Bank Repair	Repair of a failing bank and erosion by placement of riprap.	Canada Gobernadora/ Wagon Wheel Creek	Streambed (P) – 0.013	Onsite restoration of 0.065 acre of streambed.	Low Impact
11/12/04	County of San Diego; Dept. of General Services	Bonita-Sunnyside Library	Construction of a library, community center, and museum/public safety center on 1.36 acres site.	Unnamed waters	Streambed (P) – 0.015; (T) – 0.048	Creation of 0.0235 acre of wetland onsite and restoration of temporarily impacted areas.	Conditional

ATTACHMENT B-2

11/12/04	The Oaks at Trabuco, LLC	The Oaks at Trabuco	A nine lot subdivision on 34 acres in the Foothill/Trabuco Specific Plan Area of Orange County.	Trabuco Creek	Streambed/ Riparian (P) – 0.34	Restoration and enhancement of 1.02 acres.	Conditional
11/16/04	Vallecitos Water District	Vallecitos Land Outfall Replacement	Replacement of 6100 linear feet of sewer pipe.	Unnamed tributary to San Marcos Creek	Wetland (P) – 0.03; (T) – 0.03	Enhancement of 0.15 acre of southern willow scrub and restoration of temporarily impacted areas.	Conditional
11/22/04	City of Poway	Poway Creek Silt Removal And Access Ramp Project	Ten-year removal of silt and sediment in portions of Poway Creek.	Poway Creek	N/A	N/A	Withdrawn

1. Wetland refers to vegetated waters of the U.S. and streambed refers to unvegetated waters of the U.S. (P) = permanent impacts. (T) = temporary impacts.
2. Low impact certification is issued to projects that have minimal potential to adversely impact water quality. Conditional certification is issued to projects that have the potential to adversely impact water quality, but by complying with technical conditions, will have minimal impacts. Denials are issued when the projects will adversely impact water quality and suitable mitigation measures are not proposed or possible. Time expired refers to projects that may proceed due to the lack of an action by the Regional Board within specified regulatory timelines. Withdrawn refers to projects that the applicant or Regional Board have withdrawn due to procedural problems that have not been corrected within one year.

State Water Resources Control Board

Division of Water Quality
1001 I Street • Sacramento, California 95814 • (916) 341-5455
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
FAX (916) 341-5463 • http://www.swrcb.ca.gov

Terry Tamminen
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

NOV 1 9 2004

Dear Interested Party:

DEVELOPMENT OF A DRAFT POLICY FOR THE IMPLEMENTATION OF THE STORM WATER PROGRAM

The Storm Water Section staff in the Division of Water Quality is seeking your input for the development of a statewide Policy for the Implementation of the Storm Water Program (Policy). The Policy will provide guidance that will be used by the staffs at the State Water Resources Control Board and the Regional Water Quality Control Boards in the implementation of the storm water program, including, but not limited to, the development of National Pollutant Discharge Elimination Systems (NPDES) storm water permits, evaluation of permit compliance, and assessment of effectiveness of management plans. This Policy will be adopted pursuant to the requirements of the Administrative Procedure Act.

You are invited to any of the following public meetings (listening sessions) to discuss with our staff the issues needed to be addressed by this Policy:

Wednesday, January 12, 2005
10:00 a.m. to 3:00 p.m.
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar

Tuesday, January 18, 2005
10:00 a.m. to 3:00 p.m.
Joe Serna Jr./Cal/EPA Building
Coastal Hearing Room – Second Floor
1001 I Street, Sacramento

Friday, January 21, 2005
10:00 a.m. to 3:00 p.m.
Elihu M. Harris Building – Second Floor, Room 1
1515 Clay Street, Oakland

As a starting point for these listening sessions, staff has identified the enclosed list of issues that may be included in the Policy. Staff welcomes your input on these topics, other issues that could also be addressed by this Policy, and the appropriate approach for addressing all issues. If you wish to provide our staff with written comments/materials prior to the listening sessions, please email them to Jennifer Mu at jmu@waterboards.ca.gov and Thomas Filler at tfiller@waterboards.ca.gov by **January 6, 2005**.

If you have any questions regarding these listening sessions, please feel free to contact Bruce Fujimoto, Chief of the Storm Water Section, at (916) 341-5523.

Sincerely,

Stan Martinson, Chief
Division of Water Quality

Enclosure

Enclosure

ISSUES TO BE DISCUSSED AT THE LISTENING SESSIONS

Cross-program issues:

- Relationship of the storm water program to other water quality programs such as Total Maximum Daily Loads, 401 Certification, or groundwater protection requirements.

Monitoring issues:

- Chemical, biological, hydrological, and/or physical monitoring.
- Use of monitoring to determine compliance with permit requirements.
- Use of benchmarks/trends in pollution loading to assess permittees' programs.

Compliance issues:

- Methods/standards to be used by Regional Water Quality Control Boards (Regional Boards) to assess compliance.
- Definition of maximum extent practicable, best available technology, and best conventional technology.
- Necessary time to allow a permittee to put in place and implement a program.
- Necessary time to allow a program to show results.
- Development of load reductions to be used as a means of determining permit compliance.

Standards issues:

- Use of quantitative parameters (chemical or toxicity) to measure compliance.
- Application of Water Quality Standards to storm water in wet weather conditions.

Permitting issues:

- Consistency among the Regional Boards.
- Cross-boundary problems (where a permittee's boundary crosses the boundary of two or more Regional Boards).
- Consistency between Phase I and Phase II requirements.

ATTACHMENT B-6

ANNUAL REPORT 2003-04

Stormwater Monitoring Coalition of Southern California

November 15, 2004

INTRODUCTION

As a result of the increasing regulatory focus and the lack of scientific knowledge base, both stormwater regulators and municipal stormwater management agencies throughout southern California have developed a collaborative working relationship. The goal of this relationship is to develop the technical information necessary to better understand stormwater mechanisms and impacts, and then develop the tools that will effectively and efficiently improve stormwater decision-making. As individuals and agency representatives, there was early recognition that these issues are oftentimes not localized, but typically cross watershed and jurisdictional boundaries. This relationship culminated in a formal letter of agreement, signed in 2000, by all of the Phase I municipal stormwater NPDES lead permittees and the NPDES regulatory agencies in southern California to create the Stormwater Monitoring Coalition (SMC) (Table 1).

Table 1. List of member agencies in the Stormwater Monitoring Coalition

California Regional Water Quality Control Board, Los Angeles Region
California Regional Water Quality Control Board, San Diego Region
California Regional Water Quality Control Board, Santa Ana Region
City of Long Beach
County of Orange, Resources and Development Management Dept.
County of San Diego Stormwater Management Program
Los Angeles County Department of Public Works
Riverside County Flood Control and Water Conservation District
San Bernardino County Flood Control District
Southern California Coastal Water Research Project
Ventura County Watershed Protection District

As a first step, a panel of experts was commissioned to help define a five-year research agenda for the SMC. The research agenda, published in 2001, consisted of 15 unique projects developed around three main foci: 1) developing a regional monitoring infrastructure; 2) understanding stormwater runoff mechanisms and processes; and 3) assessing receiving water impacts. Regional monitoring infrastructure included projects such as standardization of sampling and reporting programs. Stormwater runoff and mechanisms included projects such as peak flow impacts. Receiving water impacts included projects such as developing regional bioassessment protocols.

As the research agenda finishes its third year, the SMC has been a successful and positive resource to its member agencies. Five projects from the research agenda have been initiated, three of which have been completed. Several more are under serious consideration for implementation in the upcoming year. What's more, all of the completed projects have been on time and on (or under) budget. Not only does the collaborative nature of SMC projects represent tremendous value to the member agencies because project costs are split across multiple agencies, but the SMC has been successful in attracting outside resources and agency support. For example, three projects have been supported by the State Water Resources Control Board (SWRCB) totaling $425,000. In

addition, in-kind assistance has regularly been received from inland wastewater dischargers, environmental groups, universities, and regulatory or stormwater agencies that are not currently SMC members. The power of collaboration should magnify as the SMC continues to be successful in accomplishing its goals. Below is a list of the project accomplishments during the 2003-04 reporting period from July 2003 to June 2004.

PROJECT ACCOMPLISHMENTS

Develop Standardized Sampling and Analysis Protocols

Status: 100% completed
Budget $180,000

This project developed a recommended stormwater monitoring infrastructure in order to increase comparability among programs throughout southern California. The SMC developed a four-step approach to accomplish this goal: (1) define the monitoring questions of interest, (2) assess what monitoring programs are currently doing to determine how well they are answering the monitoring questions, (3) create an optimum design for answering the monitoring questions, and (4) conduct QA intercalibration studies. This study was partially funded by the SWRCB in response to SB 72, whose legislative goal was to standardize sampling, analysis and reporting for stormwater monitoring. It was made clear that the SMC is only developing a design for the southern California region.

A technical working group was formed to guide the study and met monthly for over one year. The working group included the stormwater agencies and regulators on the SMC, the SWRCB, and Heal the Bay (an environmental advocacy group). The working group delivered three documents to the SMC and SWRCB, all of which were approved and have been posted on the Internet (http://www.sccwrp.org/tools/model_monitoring2.html). These documents included:

- *Monitoring Design Document* - provided the approach, rationale, and methodology for developing the model monitoring program, which is structured around five fundamental management questions.

- *Laboratory Manual* - uses a performance-based quality assurance approach for setting accuracy, precision, and sensitivity goals for a common list of constituents.

- *Information Management Manual* - uses standardized data transfer formats (SDTF) for agencies to share information.

The technical working group provided many useful tools for agencies to use in implementing the new designs at the local level including decision trees, adaptive monitoring triggers for increasing or decreasing effort, a ranking system for prioritizing

toxicity identification efforts or bacterial source identification, and strategic incorporation of the model program based on existing monitoring effort. Two of the tools are available as stand alone products including:

- Standardized Data Transfer Format (SDTF) compliant database
- Power analysis tool for determining sampling frequency to detect trends.

The stormwater model monitoring program has already begun to be implemented in southern California. At least two member agencies have used the concepts of the model monitoring program in their negotiations for NPDES permit renewals. Likewise, regulatory agencies have begun inserting the tools developed as part of this project into permit monitoring and reporting programs. The model monitoring program has also found a new application in the development of watershed wide monitoring programs for the San Gabriel River and Malibu Creek.

Peak Flow Impacts
Status: 90% completed
Proposed budget $280,000

Watershed development increases imperviousness eventually leading to alterations in runoff flow regimes. This alteration in flow regime, particularly increased flows during high frequency events (i.e. 1-2 year storms), can result in downstream impacts such as increased erosion or habitat loss. The goal of this study is to quantify impacts from increased peak flows as a result of watershed development. Ultimately, the objective of this study is to develop indicators of peak flow and resulting peak flow impacts so that regulators and regulated agencies can develop numerical criteria for peak flow. This project is fully funded by the Los Angeles County Department of Public Works (LACDPW), although most of the SMC members are interested in this study.

This project is in its final stages. A technical workgroup has been formed in coordination with the SMC consultant, EarthTech/Aquifor-Beech, to guide the study. The workplan targeted 10 sites located in Ventura, Los Angeles, and Orange Counties. Field work examined stream geomorphology and compared these results to historical geomorphologic data and changes in land use within in their respective catchments. The goal was to use these results to produce a conceptual model for bank and streambed morphological processes, a classification matrix for categorizing cohesiveness, a resiliency index for identifying stream channels most at risk, and a numerical model that will be used for evaluating management actions to stabilize at risk channels. A draft report has been written and was distributed to the SMC in November 2004. The report should be finalized in December.

This project represents the first step in a multi-year, multi-targeted research program. The data collected and interpreted in this project provides a good overview of potential impacts and categorizes the types of channels most susceptible to stream bed and bank

erosion. It does not, however, provide specific numerical guidance and still needs to be validated in all types of watersheds found in southern California. These are the next challenges for subsequent studies based on the information gleaned from this initial step.

Building a Regionally Consistent and Integrated Freshwater Stream Bioassessment Monitoring Program

Status: 5% complete

Proposed budget $280,000

Assessment of freshwater biological communities represents a potentially powerful tool for evaluating the effects of discharges in southern California creeks and streams. Bioassessments integrate the effects of multiple stressors, including chemical pollutants and physical alterations in receiving waters. The value of biological assessments is that they are closer to many of the defined beneficial uses of receiving waters (i.e. aquatic life, warm water habitat, cold water habitat) than chemically-derived water quality objectives.

The goal of this study is to build a regionally consistent bioassessment monitoring program. This project will be completed in three phases including: 1) methods standardization; 2) calibrating and validating a regional assessment tool; and 3) designing and implementing an integrated, coordinated regional monitoring program. The first phase focuses on creating a monitoring infrastructure so that multiple agencies are properly trained, data are collected in comparable manners, and data can be efficiently shared. The second phase focuses on developing an assessment tool that is robust enough to be used by all agencies across the region. This will enable a consistent approach for evaluating the status of freshwater biological communities and provide the answers regarding community impacts to managers in meaningful and understandable terms. The third phase focuses on creating a study design that most efficiently answers specific questions of interest at large regional scales. Addressing some questions at regional scales can provide cost efficiency for addressing reference condition, cumulative impacts, and when nested within a local sampling design, provides unparalleled information for providing context to local monitoring data.

The main collaborators on this project are SCCWRP and the California Department of Fish and Game (CDF&G). The project is 50% funded by the SWRCB, whose main desire is to ensure integration with the Statewide Ambient Water Monitoring Program (SWAMP). This will provide further value to SMC member agencies. To date, the SMC has begun bioassessment training for member agencies. Over the next year, SCCWRP and CDF&G intend to continue training, create a region-specific standard operating procedure for bioassessment sampling and analysis, initiate the assessment tool development/validation, and begin developing an information management system for biological data.

Status Report
Shelter Island Yacht Basin TMDL for Dissolved Copper

Shelter Island Yacht Basin (SIYB) is a recreational basin comprised of marina and yacht club facilities located in San Diego Bay, California. SIYB supports a high density of recreational vessels in a semi-enclosed, relatively shallow-water area. For many years, concentrations of dissolved copper in SIYB have exceeded the numeric water quality objectives for dissolved copper of 3.1 µg/L (chronic toxicity) and 4.8 µg/L (acute toxicity) due to continuous passive leaching from copper-based antifouling paints on vessels moored in SIYB. Approximately 97 percent of copper loading to SIYB comes from copper-based antifouling paints applied to the recreational vessels moored in the marina. The dissolved copper objectives are designed to protect marine aquatic life from toxic effects. Elevated copper concentrations in the basin are associated with adverse affects on biota including:

1) Absence of copper sensitive phytoplankton genera in SIYB;
2) Presence of copper tolerant phytoplankton genera in SIYB;
3) Decrease in species diversity paralleling increases in copper concentrations from entrance to interior of SIYB;
4) Rapid accumulation of copper in mussel tissue proportional to copper concentrations in the water column in SIYB;
5) Some copper concentrations in sediment from SIYB exceeded "Effects Range Low" level above which the incidence of probable biological effects is 29 percent;
6) Some copper concentrations in sediment from SIYB exceeded the "Effects Range Medium" level above which the incidence of probable biological effects is 84 percent;
7) Developmental toxicity observed in mussel *Mytilus edulis* taken from interior of SIYB; and
8) Toxicity testing of sediment from SIYB yielded observed toxicity.

Dissolved copper concentrations in SIYB exceed the numeric water quality objectives for copper and narrative water quality objectives for toxicity and pesticides, and threaten and impair the wildlife habitat and marine habitat beneficial uses in SIYB. Therefore, SIYB was designated as a water quality limited segment (WQLS) and placed on the 1996 List of WQLS. This TMDL was developed to address and resolve the dissolved copper impairment in SIYB.

I. Overview of Total Maximum Daily Loads

A Total Maximum Daily Load is the amount of a pollutant that a waterbody can assimilate without exceeding water quality objectives and impairing beneficial uses. The TMDL process begins when a waterbody is designated as a "water quality limited segment" for a particular pollutant and prioritized on a list as required by section 303(d) of the federal Clean Water Act (CWA). The CWA requires states to establish TMDLs for waterbodies on the list to correct the impairments. The TMDL process provides a strategy for meeting water quality standards by allocating the TMDL to the different

pollution sources and specifying the pollutant load reductions from each source needed to meet water quality objectives in the water quality limited segment.

TMDLs are implemented using the Regional Board's administrative tools, namely, issuing (or amending) waste discharge requirements (WDRs) or conditional waivers of WDRs to the dischargers responsible for the pollution sources, or by adopting Basin Plan waste discharge prohibitions. TMDL Implementation Plans also include a compliance schedule in which dischargers are required to reduce pollutant loading. TMDLs and their Implementation Plans are adaptive. Thus, Implementation Plans contain monitoring provisions to measure the effectiveness of the load reduction activities undertaken to meet water quality standards in the impaired waterbody. Implementation Plans may also include studies to fill data gaps and, if needed, refine the TMDL calculations and reassess load allocations and reductions.

The TMDL, allocations, reductions, and Implementation Plan typically are amended to the Basin Plan through the adoption of a resolution by the Regional Board. Adoption of a Basin Plan amendment is not required if the TMDL can be implemented through a single board action such as issuing WDRs to a single discharger. The Basin Plan amendment process is subject to the California Environmental Quality Act (CEQA). Thus, the Regional Board is required to conduct an environmental analysis of the amendment and limited economic analysis of the most reasonably foreseeable method of compliance with the TMDL. However, because TMDLs do not revise water quality objectives, the provisions of Water Code section 13241 requiring broader consideration of economic factors do not apply.

As with any Basin Plan amendment involving CWA provisions, a TMDL adopted by the Regional Board will not take effect until it has undergone subsequent agency approvals by the State Water Resources Control Board, the Office of Administrative Law, and the United States Environmental Protection Agency (USEPA). Following these approvals, the Regional Board is required to incorporate the TMDL, allocations, reductions, compliance schedule, and monitoring provisions into new and/or existing WDRs, waivers, or to adopt prohibitions. Use of these administrative tools requires a separate formal action or actions by the Regional Board.

The technical derivation of the TMDL, allocations, and reductions is contained in the Technical Analysis section of the TMDL Technical Report. The TMDL technical report must include the following 7 components: (1) a **Problem Statement** describing which water quality objectives are not being attained and which beneficial uses are impaired; (2) identification of **Numeric Targets** which will result in attainment of the water quality objectives and protection of beneficial uses; (3) a **Source Analysis** to identify all of the point and nonpoint sources of the impairing pollutant in the watershed and to estimate the current pollutant loading from each source; (4) a **Linkage Analysis** to calculate the **Loading Capacity** of the waterbody for the pollutant; i.e., the maximum amount of the pollutant that may be discharged to the waterbody without causing exceedances of water quality objectives and impairment of beneficial uses; (5) a **Margin of Safety** (MOS) to account for uncertainties in the analysis; (6) the division and **Allocation** of the TMDL

among each of the contributing sources in the watershed, wasteload allocations (WLA) for point sources and load allocations (LA) for nonpoint and background sources; and (7) a description of how **Seasonal Variation and Critical Conditions** are accounted for in the TMDL determination. If the TMDL is to be incorporated into the Basin Plan, the Technical Report will also include an environmental and economic analysis, as required by the CEQA.

II. Technical Component of the SIYB TMDL

Problem Statement

Shelter Island Yacht Basin (SIYB) is a semi-enclosed yacht basin located at the north end of San Diego Bay, in southern California (Figure 1). SIYB is comprised of approximately 10 marina facilities and yacht club facilities supporting over 2,200 recreational vessels. This translates into a high density of recreational boats in an area of low tidal flushing. The vessels at SIYB are typically painted with copper-based antifouling paints to slow down the buildup of marine organisms on the vessels' hulls. The copper in antifouling paints is designed to leach into the environment to prevent marine fouling, in a process known as passive leaching. However, at relatively low concentrations copper is toxic to a wide range of aquatic organisms, not just fouling organisms, and is persistent in the environment.

Concentrations of dissolved copper have been found to be consistently elevated over many years in SIYB in violation of the numeric water quality objectives for copper and narrative water quality objectives for toxicity and pesticides. Sampling surveys conducted at SIYB by the Regional Board showed that levels exceed the numeric water quality objectives by two to threefold, with concentrations as high as 8.0–12.0 µg/L of copper. High copper concentrations threaten the wildlife and marine habitat beneficial uses of SIYB. High levels of copper in the water column at SIYB are also a concern because of the increased potential to contaminate sediment, and adversely impact aquatic benthic life.

Figure 1. Map of San Diego Bay and Shelter Island Yacht Basin.

Numeric Target

The numeric target used to calculate the TMDL was set equal to 3.1 µg/L, the legally applicable numeric water quality objective for chronic exposure to dissolved copper (Table 1). The numeric objectives for copper are based on water quality criteria set forth by USEPA in the California Toxics Rule (CTR) to protect aquatic life from toxicity. When the numeric targets are met, both the numeric water quality objective for dissolved copper and the narrative water quality objectives for toxicity and pesticides related to dissolved copper are expected to be met at SIYB.

Table 1. Numeric Water Quality Objectives for Dissolved Copper.

Exposure	*Water Quality Objective**
Chronic (4-day average)	3.1 µg/L
Acute (1-hour average)	4.8 µg/L

*Concentrations should not be exceeded more than once every three years.

Source Analysis

In the source analysis, all sources of dissolved copper to SIYB were quantified. Figure 4.1 diagrams the sources and directions of flow of dissolved copper into and out of SIYB.

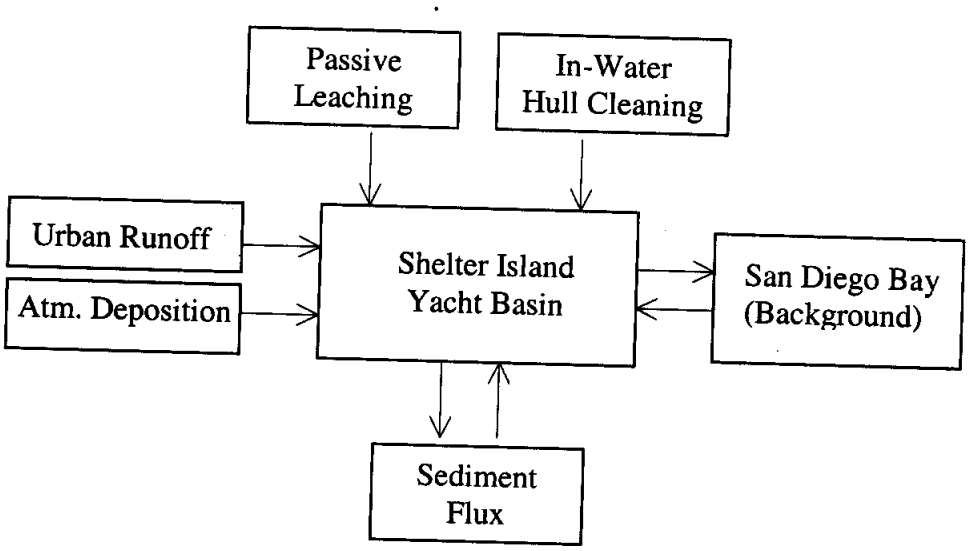

Figure 2. Sources of Dissolved Copper to Shelter Island Yacht Basin

The vast majority (97 percent) of copper enters SIYB from copper-based antifouling paints (Table 1). Passive leaching accounts for approximately 93 percent (2,000 kilograms/year (kg/year) of copper) of total loading, and underwater hull cleaning accounts for approximately five percent (100 kg/year of copper) of total loading. These loads were determined by estimating the total surface area of boat hulls at SIYB (based on the number of boats using an average boat size) painted with copper-based antifouling paint and using emission rates for passive leaching and underwater hull cleaning obtained from scientific literature. Other sources of dissolved copper including urban runoff, air deposition, sediment flux and background were determined to be relatively insignificant.

There is limited information concerning copper concentrations in sediment at SIYB. Available scientific data indicate that sediment acts primarily as a sink for, rather than a source of, dissolved copper under current loading conditions to SIYB. Essentially, more copper is contributed from the water column to the sediment than from the sediment to the water column. This is of concern due to the documented toxic conditions in sediment and the potential for further sediment contamination and adverse impacts to benthic organisms. However, reductions in dissolved copper loading as a result of this TMDL will equate to reductions in sediment loading and contamination. In fact, copper load reductions may cause water column concentrations to decrease to a level where copper fluxes out of the sediment into the water column at a greater rate than from the water column to the sediment. Sediment monitoring and toxicity studies are needed to better understand the extent of toxic conditions in sediment attributable to copper, the adverse impacts of copper in sediment on benthic organisms, and the dynamic flux of copper sediment and water column.

Table 2. Summary of Dissolved Copper Sources to SIYB.

Source	Mass Load (kg/year of Cu*)	Percent Contribution (% Cu*)
Passive Leaching	2,000	93
Hull Cleaning	100	5
Urban Runoff	30	1
Background	30	1
Direct Atmospheric Deposition	3	<1
Sediment	0	0
Combined Sources	2,163	100

* Copper (Cu)

Linkage Analysis and Determination of Loading Capacity

The loading capacity is the maximum amount of dissolved copper that can enter and remain in the water column at SIYB without exceeding the numeric target. Loading capacity at SIYB is a function of the different hydrodynamic processes that affect the fate and transport of dissolved copper as it moves through the system. These processes include circulation in SIYB, tidal flushing, and sediment flux. Collectively, the effect these processes have on the fate and transport of dissolved copper can be described by a mass-balance analysis.

A "box model" based on general mass-balance principles was used to calculate the loading capacity of SIYB. The basic mass balance principle used in the box model is that the rate of mass increase of dissolved copper in the system is equal to the rate of dissolved copper inputs to the system minus the rate of dissolved copper outputs from the system. This theoretical model, which was tailored to SIYB, accounts for copper fate and transport into and out of the waterbody. In essence, SIYB is modeled as a 3-dimensional box, and movement of copper into and out of the box is quantified using the best available information. Information used for this approach included the geometry of the waterbody, rate of source loading from antifouling paints, rate of copper loss to sediment, and average copper concentration and salinity in both SIYB and the vicinity of San Diego

Bay outside of SIYB. This mass-balance approach takes into account the hydrodynamic processes discussed above. The end result, once all parameters have been entered into the box model, was a calculation of the loading capacity of SIYB. This number, when adjusted by a margin of safety, defines the TMDL for dissolved copper into SIYB.

TMDL and Allocations

The TMDL for dissolved copper into SIYB was calculated to be 1.6 kg/day or 567 kg/year, after applying an MOS to account for uncertainty (Table 3). A 76 percent reduction in loading is required from the copper sources to SIYB to achieve the TMDL. Most of the load reduction will be required from the most significant source, passive leaching, and to a lesser extent from hull cleaning. No reductions will be required from the other much less significant sources. In terms of the total reduction necessary from all sources to meet the TMDL, 75 percent of the necessary total reduction will be required from passive leaching, amounting to an 81 percent reduction from current passive leaching loading (Table ii). Furthermore, one percent of the necessary total reduction will be required from hull cleaning, amounting to a 28 percent reduction from current hull cleaning loading.

Table 3. TMDL and Allocation Summary.

Source	Current Load (kg/year)	Allocation (kg/year)	Percent Reduction from Current Loading (%)	Percent Reduction from Total Loading (%)
Passive Leaching	2,000	375	81	75
Hull Cleaning	100	72	27	1
Urban Runoff	30	30	0	0
Background	30	30	0	0
Direct Atmospheric Deposition	3	3	0	0
Sediment	0	0	0	0
Margin of Safety		57		
Combined Sources	2,163			76
TMDL		567		

II. Regional Board Authority to Regulate Discharges of Copper

The Regional Board's finding that it can regulate discharges of a legally registered pesticide, in this case, copper-based antifouling paints, generated many comments disagreeing with the Regional Board's finding. These paints are subject to USEPA regulation pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and California Department of Pesticide Regulation (DPR) regulation pursuant to the California Food and Agriculture Code. In the TMDL documents, the "discharge of copper" refers to "residual copper" which is defined as any molecule of copper from boat hull antifouling paints into SIYB surrounding waters that does not reach a target fouling organism. This includes residual copper leached from legally registered hull antifouling paints used in accordance with label instructions in compliance with FIFRA. The passive leaching of "residual copper" from antifouling paints is a "discharge of waste" pursuant to California Water Code section 13050(d) because any discharge of a chemical that

affects water quality in a manner that detracts from the suitability of water for a beneficial use is a discharge of water even though the discharge of residual copper occurs as a consequence of using copper-based antifouling paints on boat hulls in accordance with requirements set by the DPR.

Dischargers responsible for meeting the copper load reductions in SIYB include the San Diego Unified Port District (Port), SIYB marina owners and operators, persons owning boats moored in SIYB, underwater hull cleaners operating in SIYB. To a much lesser extent, the City of San Diego also discharges copper from its Municipal Separate Storm Sewer Systems (MS4s). As dischargers of waste (dissolved copper), these persons can be appropriately regulated under WDRs, waivers of WDRs and Basin Plan prohibitions.

Although passive leaching of copper from boat hulls is a direct consequence of the actions of boat owners, the Regional Board has discretion to regulate landowners (the Port) and owners and operators of facilities (the marina owner/operators) on which activities occur that result in a discharge of waste as long as the owner has knowledge of the activity causing the discharge and the ability to control the activity. The marina owners/operators and Port meet all of these criteria. However, representatives of the marinas at SIYB and the Port disagree that they should be held accountable for these discharges, in part because they claim that they do not have the ability to control the discharges. Rather, they contend that the boat owners and hull cleaners should be regulated directly by the Regional Board.

III. Implementation Plan

There are several strategies and management practices available to the dischargers to reduce copper loading to SIYB. They include transition to nontoxic and less toxic hull coatings and strategies; reduce effects of copper-based paints through management practices; conduct boater education programs, commercial demonstrations and scientific studies; impose controls on boat owners and/or marina owners and operators to limit use of copper-based hull paints; and to implement financial incentives.

Regulatory options to ensure that the dischargers comply with the copper reductions are as follows:

- The Regional Board will coordinate with governmental agencies having legal authority over the use of copper-based antifouling paints to protect water quality from the adverse effects of copper-based antifouling paints in SIYB; and

- The Regional Board will regulate the discharge of copper from antifouling paints to SIYB waters through the issuance of Waste Discharge Requirements (WDRs), Waivers of WDRs (waivers), or adoption of Waste Discharge Prohibitions. WDRs could build upon pollution control programs developed by discharger organizations or the Port. Likewise, waivers or prohibitions could be conditioned on implementation of pollution control programs through third party agreements between the Regional Board and discharger organizations, and/or the Port.

- The Regional Board will amend Order No. 2001-01, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm /Sewer Systems" to require that discharges of copper into SIYB waters not increase from existing loadings.

The dischargers will be required to monitor SIYB waters for the purpose of assessing the effectiveness of the alternatives implemented.

Compliance Schedule

Copper load reductions are required over a 17-year staged compliance schedule period. The first stage consists of an initial 2-year orientation period during which no copper load reductions are required. The subsequent 15-year reduction period is comprised of three stages during which incremental copper load reductions are required until a 76 percent reduction in copper loading is achieved. This schedule was based on the findings of the economic analysis, described below.

Table 4. Interim Numeric Targets for Attainment of the TMDL.

Stage	Time Period	Percent Reduction from Current Estimated Loading	Reduction to be Attained by End of Year	Estimated Interim Target Loading (kg/year of dissolved Cu)
Stage 1	Years 1-2	0%	N/A	N/A
Stage 2	Years 2-7	10%	7	1,900
Stage 3	Years 7-12	40%	12	1,300
Stage 4	Years 12-17	76%	17	567

IV. Environmental and Economic Analysis

Pursuant to CEQA, the Regional Board is required to conduct an environmental analysis to estimate of the cost of the reasonably foreseeable methods of compliance with the required copper reductions. The most reasonably foreseeable method of compliance involves phasing out the use of copper-based antifouling paints and increasing the use of nontoxic and less toxic alternative coatings. The Regional Board can adopt TMDLs despite significant economic consequences. The Regional Board is not required to do a formal cost-benefit analysis.

The economic analysis was based on the results of an investigation mandated under California Water Code section 13366 created by California Senate Bill 315 (Alpert, 2001) to identifying incentives necessary to ensure that nontoxic alternatives to metal-based antifouling hull coatings are used on recreational vessels in San Diego Bay. The investigation and resulting report, "Transitioning to Non-Metal Antifouling Paints On Marine Recreational Boats in San Diego Bay" identified nontoxic alternatives, compared the costs of using these alternatives to the cost of using traditional copper-based antifouling paint, and identified economic incentives for transitioning to the use of alternatives. This report, hereafter referred to as the Carson report, considered economic impacts and incentives from a San Diego Bay-wide perspective. The Carson report was

prepared by an economics professor at the University of California, San Diego along with researchers at the University of California Sea Grant Extension Program.

The Carson report determined that a conversion from copper to nontoxic coatings would not result in substantial economic hardship to the boating community if it took place over approximately 15 years. This finding is premised on two assumptions: 1) all newly manufactured boats would be painted with nontoxic coatings; and 2) boats in need of routine stripping (found to occur every 15 years) would be re-painted with nontoxic coatings. This is significant because stripping is one the most expensive maintenance costs.

In comments received, the SIBY boat owners have refuted that boats need to be stripped as often as every 15 years. While two information sources[1] support this stripping frequency, nonetheless, for owners who never strip their boats, the conversion to non-toxic epoxy coatings would cost an additional $5,200 to $6,000 compared to a boat owner who includes stripping as part of routine boat maintenance (assuming an average boat length of 40 feet and a stripping cost between $130 to $150 per foot).

Research shows that when considered over the life of the boat, boat owners are not likely to face a significant cost increase for maintaining the nontoxic boat hull coatings. This is because although nontoxic epoxy coatings are initially more expensive to apply, they are actually more cost effective over the long-term life of a boat. Although initial costs are greater, boat owners will likely realize small cost savings on nontoxic hull coatings and maintenance over the life of the boat compared to the costs associated with copper-based paints.

In summary, the Carson report established that converting to nontoxic strategies is possible and economically feasible if sufficient time is provided. The proposed TMDL compliance schedule incorporates the Carson report's recommended 15-year conversion period and provides an additional two-year grace period during which additional education efforts, commercial demonstrations, and scientific studies will be initiated.

V. Adaptive Implementation and Modification of Water Quality Objectives

TMDLs including implementation plans are adaptive and can be refined based on new information and data. This is particularly relevant for the SIYB TMDL due to the possibility that water quality objectives for dissolved copper might be changed if 1) USEPA changes the applicable water quality criteria, or 2) site-specific objectives (SSOs) are adopted. The draft Basin Plan amendment has been revised to include provisions for changing the numeric target and recalculating the TMDL, MOS, allocations, and reductions in the event that the water quality objective for copper in SIYB is changed.

USEPA is considering adopting new aquatic life criteria for dissolved copper that are more stringent for marine organisms than the current values. Should the proposed aquatic criteria be adopted and eventually promulgated in the CTR in the form of legally

[1] The Carson Report, and written communication from Ms. Leigh Johnson of the University of California Sea Grant Program.

applicable numeric water quality objectives, the numeric targets represented in this TMDL would also be changed.

Additionally, there is growing interest among stakeholder groups to adopt less stringent water quality objectives based on the results of site-specific studies. There are a number of USEPA approved procedures that can be used to establish SSOs, including the water effects ratio (WER) procedure. The WER procedure adjusts the water quality criteria to account for a site's water chemistry based on the ratio of the toxicity of a chemical in site water to the chemical's toxicity in laboratory water. In the absence of site-specific data, the WER is assumed to be equal to one. This procedure is commonly used to determine whether chemical or physical conditions of a waterbody will cause a pollutant to be less bioavailable and therefore less toxic.

Aquatic life toxicity to copper is influenced by the copper species and complexes it forms. Dissolved copper is comprised of inorganic forms, which include the ionic form and inorganic complexes, and organic complexes, which are formed through complexation with organic molecules naturally found in the environment, such as humic substances. Copper has a strong affinity for organic molecules, and the predominant form of copper in seawater is an organic complex. Of the dissolved copper species, the inorganic or ionic forms tend to be more toxic than organic complexes.

The Regional Board agrees that investigating the relevance of SSOs for copper at SIYB may be appropriate. In response to a request by marina owners/operators, the Regional Board prepared a Triennial Review issue titled "Water Quality Objectives for Copper at Shelter Island Yacht Basin." This issue was ranked 31st on the prioritized issue list at the time the Triennial Review was completed on September 8, 2004. As the 31st ranked issue, it is not slated to receive basin planning resources for investigation over the next three years. However, consideration of developing an SSO for copper in SIYB waters likely is feasible over the 17-year compliance period.

VI. Substantial Changes to the TMDL Technical Report since the December 10, 2003 Hearing

Following the first comment period, the Regional Board revised certain sections of the draft Resolution, Basin Plan Amendment and Technical Report (revised draft Technical Report) and released it for a second comment period. The second comment period closed on November 12, 2004.

The draft Basin Plan amendment was modified to include a method to recalculate the TMDL, MOS, allocations and reductions if the water quality objectives for dissolved copper in SIYB are changed in the future. Additionally, in the section entitled "Environmental Review" the response to the CEQA checklist question, "would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation" was changed from "less than significant" to "potentially significant unless mitigation is incorporated."

Portions of the section entitled 'Legal Analysis" were deleted and the section entitled "Implementation Plan" was rewritten in response to comments that the passive leaching of copper from boat hulls is not a point source, and should not be regulated under waste discharge requirements that implement NPDES regulations. Although there are plausible arguments that the discharge of copper from boat hulls is from a point source, to develop and apply appropriate numeric effluent limits and other conditions needed for NPDES requirements would be complex and controversial. The Regional Board's authority to implement the TMDL is not affected by the modifications of the legal analysis. The arguments for and against regulating passive leaching under NPDES requirements will need to be addressed as the Regional Board pursues implementation following adoption of the TMDL.